



BARITE HILL PROJECT

Highway 221 & State Road 33-162  
P.O. Box 1510  
McCormick, South Carolina 29835  
Phone 803/465-3321 Fax 803/465-4308

DATA

March 25, 1994

IWP-242

McCormick County

Barite Hill RECEIVED

MAR 28<sup>th</sup> 1994

HYDROGEOLOGY

Mr. Van Kiesler  
Bureau of Solid & Hazardous Waste  
SCDHEC  
2600 Bull Street  
Columbia, SC 29201

Dear Mr. Kiesler:

Enclosed please find two copies of the Groundwater Monitoring results for the first quarter of 1994. The lab analysis and a collated version of the data has been included.

All samples fell within the calculated statistical limits. However, the Well N sample was not sampled for fluoride as it should have been. The well will be resampled and the results submitted to DHEC as soon as they are received.

If you have any questions or comments, please feel free to contact me at (803) 443-2222.

Sincerely,

Jean V. Whisnant

Jean V. Whisnant

RECEIVED

MAR 25 1994

R3 UPGRADIENT

LOCATION 20242.910, 6753.730

HYDROGEOLOGY

COLLAR ELEVATION - 486.100

DEPTH OF WELL - 70ft

	DATE	8/28/91	9/12/91	2/27/92	5/14/92	8/25/92	11/23/92	2/24/93	5/19/93	8/17/93	11/15/93	2/14/94
DEPTH TO WATER		46.27	46.18	50.82	52.21	52.65	49.89	46.06	43.14	44.22	46.31	49.06
WATER ELEVATION		439.83	439.92	435.28	433.89	433.45	436.21	440.04	442.96	441.88	439.19	438.04
Silver		<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aluminum		.51	.71	16.6	1.9	2.6	2.63	1.16	1.19	0.236	0.501	0.247
Barium		0.53	0.11	0.23	0.11	0.10	0.098	0.129	0.149	0.100	0.130	0.144
Calcium		.4		0.6	<1	<1	0.272				0.262	
Cadmium		0.006	<0.005	<0.005	<0.005	<0.005	<0.001	<0.00100	<0.00100	<0.001	<0.001	<0.0050
Chromium		<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<0.0020	<0.0020	<0.002	<0.002	<0.010
Copper		.1	0.06	0.28	0.07	0.04	0.060	0.042	0.042	0.016	0.034	0.031
Iron		128	95	28.2	5.9	3.0	5.13	2.29	2.11	0.425	1.57	0.609
Potassium		3	<2	2	<2	<2	<0.40				<0.4	
Magnesium		1	50	0.38	<1	<1	<0.20				<0.2	
Manganese		0.31	3	0.06	0.02	0.01	0.018				0.009	
Sodium		9	24	8	9	10	11.3				5.45	
Nickel		<0.02	0.10	<0.02	<0.02	<0.02	<0.0040	<0.0040	<0.0040	0.017	<0.004	<0.020
Zinc		0.34	0.38	0.09	0.06	<0.02	0.021	0.020	0.038	0.086	0.027	0.056
Mercury		0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.00020
Arsenic		<0.005	<0.024	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Lead		0.076	0.013	0.020	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Selenium		<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
TDS		1	<1	1	2	1	3	1	3	3	1.4	1.6
Alkalinity		14	128	11	12	7.4	11.6				2.8	
Chloride		5	45	5	5	5	5	5	5	5	4.1	4.0
Fluoride		0.20	0.60		0.1	<0.1	0.1				0.15	
pH (Lab)		5.64	7.08	5.40	5.16	5.75					5.4	5.3
pH (Field)				5.40	5.56	5.17	5.27	4.64	4.54	4.81	4.94	4.6
Sulfate		7	<12	4	5	4	4	<3	<3	4	<3.0	<3.0
Spec. Cond.		40	310	50	53	61	65	43	41	45	45	46
Temperature		21	8	16.1	18.9	18	16	15	18	19	19.3	16.3
Ammonia N		0.1	0.35	<0.1	<0.1	0.2	<0.1				<0.10	
Nitrite N		<0.05	<0.05	<0.05				<0.05				
Nitrate N		0.30	0.23	0.25	0.28	0.27	0.29	0.32	0.34	0.27	0.293	0.308
Cyanide (total)		<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	<0.006	<0.006	<0.005	<0.005	<0.0050
TDS		116	38	56	42	58	33	17	57	24	32	29

LOCATION 18992.210, 6023.290

COLLAR ELEVATION - 446.500

DEPTH OF WELL - 121ft

DATE	8/14/91	8/22/91	2/26/92	5/14/92	8/26/92	11/23/92	2/24/93	duplicate 2/24/93	5/18/93	8/17/93	11/15/93	2/14/94
DEPTH TO WATER	22.25	22.59	23	23	26.8	26.19	21.16		18.31	22.35	24.14	22.1
WATER ELEVATION	424.25	423.91	423.5	423.5	419.7	420.31	425.34		428.19	424.15	422.36	421.4
Silver	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aluminum	2.0	7	0.2	0.7	0.6	0.669	0.480	0.671	0.639	0.239	0.973	0.880
Barium	0.20	0.25	0.15	0.18	0.20	0.203	0.182	0.184	0.190	0.166	0.181	0.188
Calcium	34.3	40	31.7	31	38	36.1					30.6	
Cadmium	<0.005	0.007	<0.005	<0.005	<0.005	<0.001	<0.00100	<0.00100	<0.0050	<0.001	<0.001	<0.0050
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0020	<0.0020	<0.0020	<0.010	<0.002	0.002	<0.010
Copper	0.02	0.05	<0.02	0.01	0.01	0.009	0.007	0.009	<0.020	0.007	0.021	0.022
Iron	11.9	40	0.61	7.7	6.2	7.06	6.10	7.75	7.04	2.51	15.6	13.3
Potassium	3	2	<2	<2	<2	1.30					1.28	
Magnesium	6.29	8	5.16	5	6	5.84					5.37	
Manganese	0.62	2	0.34	0.59	0.60	0.617					0.821	
Sodium	14	15	11	12	13	13.1					11.3	
Nickel	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0040	<0.0040	<0.0040	<0.020	0.006	<0.004	<0.020
Zinc	0.31	<0.03	0.04	0.12	0.11	0.094	0.130	0.101	0.153	0.075	0.211	0.201
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Lead	0.195	0.39	0.009	0.038	0.088	0.094	0.103	0.126	0.070	0.062	0.161	0.165
Selenium X	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
TOC	<1	8	1	2	1	6	1	2	1	2	1.2	1.3
Alkalinity	31	114	124	119	133	126					136	
Chloride	7	7	8	9	18	15	12	12	10	10	9.9	10.1
Fluoride	0.2	0.2	0.2	0.1	0.1	0.2					0.32	
pH (Lab)	7.1	7.32	7.68	7.78	7.69						7.7	7.6
pH (Field)			7.64	7.54	7.75	6.83	7.16		7.18	7.43	6.21	6.37
Sulfate	9	10	9	8	9	9	11	11	10	8	19.7	12.1
Spec. Cond.	240	235	267	254	172	310	287		267	266	256	269
Temperature			15	17.8	18	15	15		18		18.9	18
Ammonia N	0.27	0.14	<0.1	<0.1	0.2	0.2					0.17	
Nitrite N	<0.05	<0.05					<0.05	<0.05				
Nitrate NX	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050
Cyanide (total)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.006	<0.006	<0.006	<0.005	<0.0050	<0.0050
TDS	158	14	200	189	220	179	175	173	164	172	192	182

LOCATION 187741.200, 6890.800

COLLAR ELEVATION - 432.600

DEPTH OF WELL - 37.8ft

DATE	3/27/91	6/28/91	9/19/91	12/19/91	2/27/92	duplicat 2/27/92	5/14/92	8/25/92	11/23/92	2/24/93	5/18/93	8/17/93	8/17/93 duplicate	11/15/93	2/14/94
	DEPTH TO WATER	12.89	12.6	13.69	15.22	13.37	13.99	13.92	12.6	10.59	10.86	13.32	13.67	10.98	
WATER ELEVATION	419.71	420	418.91	417.38	419.23		418.61	418.68	420	422.21	421.74	419.28		418.93	421.62
Silver	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010
Aluminum	6.8	4.3	3.1	125	59.1	120	26.3	43.4	63.1	26.8	34.2	20.0	13.7	17.0	53.2
Barium	<0.02	0.03	0.03	0.46	0.29	0.44	0.12	0.16	0.264	0.121	0.167	0.098	0.093	0.078	0.240
Calcium	13.0	27.8	28.1	64.7	45.7	74.7	34	40	51.0						30.0
Cadmium	<0.002	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	0.0027	0.0014	<0.0050	<0.001	<0.001	<0.001	<0.0050
Chromium	<0.01	<0.01	<0.01	0.32	0.17	0.3	0.07	0.10	0.168	0.063	0.098	0.057	0.054	0.044	0.165
Copper	0.02	0.04	<0.02	0.22	0.11	0.2	0.05	0.07	0.125	0.046	0.081	0.040	0.044	0.038	0.141
Iron	8.64	5.23	3.76	185	92.6	162	39.8	56.6	99.1	33.6	51.4	26.0	28.5	24.8	90.6
Potassium	<2	<2	<2	6	3	6	2	2	2.85						1.08
Magnesium	15.9	19.3	20.1	97.2	58.6	88.1	34	38	56.9						26.0
Manganese	0.61	0.55	0.65	4.86	3.01	4.11	1.30	1.56	2.68						0.814
Sodium	8	28	30	25	20	28	26	28	26.4						21.9
Nickel	<0.02	0.03	<0.02	0.11	0.06	0.10	0.02	0.03	0.059	0.022	0.027	0.032	0.021	0.017	0.065
Zinc	0.12	0.15	<0.02	0.66	0.43	0.57	0.14	0.19	0.351	0.126	0.245	0.163	0.107	0.090	0.354
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	<0.005	<0.02	<0.005	<0.025	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Lead	0.005	0.014	<0.005	<0.026	0.025	0.028	<0.005	0.015	0.016	0.022	0.010	0.006	0.006	<0.005	0.0122
Selenium	<0.005	<0.005	<0.005	<0.10	<0.025	<0.025	<0.005	<0.005	<0.010	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005
TOC	2	2	1	2	2	2	1	1	3	2	1	1	2	1.2	1.3
Alkalinity	65.1	173.3	173	165	168	170	153	154	152						156
Chloride	4	41	41	60	38	44	38	36	35	38	43	45	45	44.9	44.1
Fluoride					0.2	2.5	1	0.2	0.7						0.44
pH (Lab)	6.7	6.73	6.85	6.47	6.94	6.87	6.72	6.85							6.5
pH (Field)					6.89	6.88	6.82	6.10	6.64	6.35	6.62	6.66	6.42	6.33	
Sulfate	22	<12	3	<30	6	<3	<30	<3	<30	<30	<30	<12	<12	<6.0	<15
Spec. Cond.	180	395	355	407	374	376	376	399	399	424	424	411		408	447
Temperature	23	22.5		19	15.5	15.5	17.8	18	18	15	17	17		19.6	17.2
Ammonia N	0.38	0.34			0.15	0.13	<0.1	<0.1	0.2	0.1					0.21
Nitrite N			<0.05	<0.05											<0.10
Nitrate N	<0.05	<0.05	0.09	0.11	<0.05	<0.05	0.11	0.08	0.14	<0.05	0.11	0.09	0.11	<0.050	<0.10
Cyanide (total)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.006	<0.006	<0.005	<0.005	<0.0050	<0.0050
TDS	185	251	154	237	264	264	257	265	234	256	334	261	246	219	267

03

LOCATION 19506.650, 7324.42

COLLAR ELEVATION - 470.391

DEPTH OF WELL - 79ft

DATE	8/28/91	9/12/91	2/27/92	5/14/92	8/25/92	11/23/92	2/24/93	5/19/93	8/17/93	11/16/93	2/19/94
DEPTH TO WATER	37.54	37.6	41.06	40.24	41.11	39.6	36.72	34.5	36.88	39.05	38.15
WATER ELEVATION	432.851	432.791	429.331	430.151	429.281	430.591	433.671	435.891	433.511	431.341	432.241
Silver	0.014	0.061	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010
Aluminum	158	62	4.1	1.0	1.6	0.509	0.438	0.351	0.091	0.360	0.926
Barium	0.21	0.42	<0.02	<0.02	<0.02	0.004	0.007	<0.0040	<0.004	0.008	<0.020
Calcium	85.0		36.2	33	35	33.5					32.7
Cadmium	0.007	<0.005	<0.005	<0.005	<0.005	<0.00100	<0.00100	<0.00100	<0.001	<0.001	<0.0050
Chromium	0.04	<0.01	<0.01	<0.01	<0.01	<0.0020	<0.0020	<0.0020	<0.002	<0.002	<0.010
Copper	0.13	0.81	<0.02	<0.01	<0.02	<0.0040	<0.0040	<0.0040	<0.004	<0.004	<0.020
Iron	208	81	5.94	1.2	2.4	0.723	0.638	0.491	0.194	0.830	1.35
Potassium	6	3	<2	<2	<2	0.454					<0.4
Magnesium	87	0.85	15.2	13	14	12.9					13.2
Manganese	7	0.18	0.53	0.24	0.41	0.202					0.108
Sodium	18	10	19	20	21	20.4					20.1
Nickel	0.19	<0.02	0.04	<0.02	0.03	0.023	0.020	0.015	0.021	0.015	0.020
Zinc	0.81	0.23	0.04	<0.02	<0.02	0.010	0.014	0.076	0.042	0.019	0.021
Mercury	0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020
Arsenic	<0.020	<0.020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050
Lead	0.025	0.094	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050
Selenium	<0.10	<0.020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050
TOC	1	2	1	1	<1	3	2	2	3	1.9	5.8
Alkalinity	127	11	129	123	124	127					132
Chloride	44	5	51	49	47	46	46	46	48	50.9	52.1
Fluoride	0.75	0.2	1.2	<0.1	0.1	0.1					0.16
pH (Lab)	6.85	5.91	6.64	6.67	6.68					6.8	6.8
pH (Field)			6.68	6.54	5.89	6.60	6.71	6.45	6.43	6.49	6.22
Sulfate	<3	<15	<3	3	<3	<3	<3	<3	<3	<3.0	5.0
Spec. Cond.	350	45	348.5	354	394	391	376	384	386	400	400
Temperature	21	7	16	18.3	18	16	13.5	17	16	17.8	16.6
Ammonia N	1.4	0.35	0.27	<0.1	0.2	<0.1					<0.10
Nitrite N	<0.05	<0.05					<0.05				
Nitrate N	0.15	0.08	0.06	0.14	0.12	0.14	<0.05	0.33	0.13	0.138	0.141
Cyanide (total)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.006	<0.006	<0.005	<0.0050	<0.0050
TDS	116	260	259	260	274	224	236	525	230	241	252

GW-6

LOCATION 18937.500, 6179.100

COLLAR ELEVATION - 425.900

DEPTH OF WELL ~ 28.4ft

	DATE	3/27/91	6/28/91	9/19/91	12/19/91	2/28/92	5/14/92	8/25/92	11/23/92	2/21/93	5/18/93	8/17/93	11/15/93	2/14/94
DEPTH TO WATER		2.6	2.4	4.79	6.42	5.33	6.29	4.97	3.96	2.54	2.42	2.35	3.33	2.6
WATER ELEVATION		423.3	423.5	421.11	419.48	420.57	419.61	420.93	421.94	423.36	423.48	422.95	422.51	423.3
Silver		<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010
Aluminum		1.2	1.8	1.5	0.6	2.6	1.8	0.5	2.16	0.655	0.911	0.296	1.20	0.824
Barium		0.03	0.03	0.05	0.04	0.03	0.05	0.04	0.055	0.026	0.035	0.041	0.043	0.032
Calcium		18.1	21.7	21.6	22.5	18.7	22	22	20.3				17.4	
Cadmium		<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0011	<0.00100	<0.00100	<0.001	<0.001	<0.0050
Chromium		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.003	<0.0020	0.002	<0.002	<0.002	<0.010
Copper		<0.02	0.02	0.03	<0.01	0.02	<0.01	<0.02	0.007	<0.0040	0.004	<0.004	0.006	<0.020
Iron		1.02	1.59	1.06	0.59	2.23	1.2	0.4	2.12	0.558	0.892	0.311	1.51	1.29
Potassium		<2	2	<2	<2	<2	<2	<2	1.35				1.18	
Magnesium		10.2	11.5	11.8	11.9	10.1	12	12	10.9				9.93	
Manganese		0.22	0.32	1.38	0.96	0.53	1.16	1.21	1.11				1.41	
Sodium		26	29	31	30	22	27	30	28.4				26.0	
Nickel		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0040	<0.0040	<0.0040	0.005	<0.001	<0.020
Zinc		<0.02	0.11	0.08	<0.02	0.02	<0.02	<0.02	0.019	0.008	0.038	0.043	0.030	0.042
Mercury		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020
Arsenic		<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050
Lead		0.017	0.015	<0.005	<0.005	0.016	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050
Selenium		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050
TOC		5	8	2	1	1	1	2	3	1	2	1	1.9	1.3
Alkalinity		87.15	86.1	122	118	89	90	107	101				103	
Chloride			49	44	41	43	42	39	39	39	37	34	37.4	38.5
Fluoride						0.5	0.2	0.2	0.2				0.23	
pH (Lab)		7.0	6.55	6.70	6.27	6.51	6.54	6.68				6.9	6.8	6.6
pH (Field)						6.61	6.59	6.92	6.83	6.40	6.27	6.27	6.47	6.16
Sulfate		12	14	16	13	12	11	12	13	14	11	9	11.2	11.4
Spec. Cond.		290	320	320	316	312.5	349.8	194	339	313	311	296	314	296
Temperature		23	22.5		20	14.7	15.6	18	17	12	15	21	19.9	12.3
Ammonia N		0.19	0.24		<0.1	<0.1	0.1	0.3	0.3				<0.10	
Nitrite N				<0.05	<0.05					<0.05				
Nitrate N		0.06	<0.05	<0.05	0.19	0.10	<0.05	<0.05	0.13	0.08	<0.05	<0.05	0.058	0.122
Cyanide (total)		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.006	<0.006	<0.005	<0.0050	<0.0050
TDS		272	220	162	216	234	235	245	210	197	219	201	196	203

F3 UPGRHDIENT

LOCATION 19505.000, 5619.790

COLLAR ELEVATION - 482.263

DEPTH OF WELL - 75ft

DATE	8/14/91	8/22/91	2/27/92	5/14/92	8/25/92	duplicate 8/25/92	11/23/92	2/24/93	5/19/93	8/17/93	11/16/93	duplicate 11/16/93	2/14/94
	DEPTH TO WATER	38.61	38.62	45.18	53.96	53.19		51.66	48.67	47.22	48.15	47.98	47.45
WATER ELEVATION	443.653	443.443	437.063	428.303	429.073		430.603	433.593	435.043	434.113	434.283		434.813
Silver	<0.010	<0.010	<0.010	0.04	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010
Aluminum	18.2	15	10.9	23.0	20.4	7.1	23.8	8.7	3.74	2.72	2.70	2.03	14.8
Barium	0.17	0.17	0.15	0.29	0.22	0.13	0.238	0.141	0.115	0.106	0.118	0.117	0.139
Calcium	8.4	13	5.9	11	11	11	17.4				3.41	1.87	
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0021	0.0011	<0.00200	<0.001	<0.0010	<0.001	<0.0050
Chromium	<0.01	0.01	<0.01	0.01	<0.01	<0.01	0.011	0.007	0.002	0.003	0.002	<0.002	0.011
Copper	0.14	0.11	0.08	0.28	0.12	0.08	0.193	0.095	0.035	0.026	0.042	0.040	0.039
Iron	22.9	28	17.4	78.30	35.0	20.8	51.6	22.1	8.94	5.25	9.27	8.24	76.5
Potassium	3	<2	<2	<2	<2	<2	0.965				0.409	0.455	
Magnesium	1.24	2	1.23	2	2	2	1.71				1.12	1.06	
Manganese	0.05	0.07	0.04	0.08	0.06	0.05	0.059				0.025	0.024	
Sodium	19	15	9	12	13	13	14.6				6.78	6.56	
Nickel	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.004	<0.0040	<0.0040	0.005	<0.0040	<0.004	<0.0040
Zinc	0.21	0.12	0.08	0.12	0.08	0.06	0.062	0.058	0.112	0.052	0.034	0.045	0.037
Mercury	<0.0002	<0.0002	0.0002	0.0003	0.0003	0.0005	0.0003	0.0003	<0.0002	<0.0002	0.00076	0.00083	0.00083
Arsenic	<0.005	0.012	<0.005	<0.005	<0.005	<0.003	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050
Lead	0.026	0.038	0.018	0.12	0.079	0.033	0.079	0.040	0.007	0.015	0.0198	<0.0050	0.0327
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050
TOC	2	<1	2	1	<1	<1	3	3	4	2	5.4	9.6	2.4
Alkalinity	47	53	21	24	47	26	47.2				9.9	11.0	
Chloride	7	6	7	7	7	7	8	7	8	7	5.9	6.0	5.9
Fluoride	0.2	<0.1		0.3	0.2	0.2	0.3				<0.10	0.11	
pH (Lab)	6.3	6.19		6.01	6.36	6.16					5.9	6.0	5.9
pH (Field)			5.62	5.82	5.47	5.47	5.65	5.58	5.26	5.45	5.44		5.26
Sulfate X	12	16	10	<12	<12	8	<12	8	9	8	4.7	5.9	<15
Spec. Cond.	155	110	83	85	121	121	118	94	101	71	63	68	
Temperature			15.5	20	18	18	16	15	17	22	19.2		16.2
Ammonia N	0.25	0.13	0.13	<0.1	0.3	0.1	<0.1				<0.10	<0.10	
Nitrite N	<0.05	<0.05	<0.05					<0.05					
Nitrate N	0.12	0.17	0.15	0.17	0.15	0.17	0.17	0.18	0.19	0.19	0.183	0.189	0.127
Cyanide (total)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.006	<0.006	<0.005	<0.0050	<0.0050	<0.0050
TDS	246	20	88	86	113	106	100	51	74	57	48	36	59

H

LOCATION 18757.420, 6358.792

COLLAR ELEVATION - 433.935

DEPTH OF WELL - 27.07

DATE	1/14/92	1/22/92	2/27/92	5/14/92	8/25/92	11/23/92	2/24/93	5/18/93	8/17/93	11/15/93	2/14/94
DEPTH TO WATER	16.43	16.14	15.07	15.39	15.4	14.09	12.17	16.53	14.3	14.46	12.44
WATER ELEVATION	417.505	417.795	418.865	418.545	418.535	419.845	421.765	417.405	419.635	419.475	421.495
Silver	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010
Aluminum	35.1	48.1	38.8	24.0	25.1	19.9	24.5	33.3	53.1	18.4	17.7
Barium	0.09	0.11	0.11	0.07	0.05	0.045	0.049	0.086	0.120	0.047	0.047
Calcium	36.8	31.4	31.0	30	31	29.6				26.9	
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.00100	<0.00100	<0.0050	<0.001	0.0014	<0.0050
Chromium	0.04	0.04	0.05	0.02	0.03	0.017	0.024	0.034	0.037	0.016	0.026
Copper	0.03	0.03	0.05	0.02	<0.02	0.015	0.016	0.038	0.043	0.020	0.024
Iron	45.8	61.4	41.2	27	29.4	20.3	24.2	39.5	56.9	21.7	29.3
Potassium	7	4	5	2	2	2.90				1.57	
Magnesium	42.0	48.1	34.0	34	34	31.4				31.1	
Manganese	2.01	2.74	2.60	1.58	1.27	0.833				1.27	
Sodium	48	44	36.00	45.00	50.00	49.8				41.2	
Nickel	0.02	0.02	0.02	<0.02	<0.02	0.007	0.007	0.085	0.031	0.009	<0.020
Zinc	0.33	0.44	0.30	0.20	0.17	0.165	0.154	1.44	0.544	0.157	0.168
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.00020
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050
Lead	0.019	0.006	0.010	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050
Selenium	<0.005	<0.025	<0.025	<0.020	<0.005	<0.005	<0.005	<0.040	<0.005	<0.0050	<0.0050
TOC	2	2	2	1	1	5	2	2	2	2.2	1.6
Alkalinity	201	206	214	196	204	205				196	
Chloride	50	65	51	55	58	53	59	69	68	62.0	64.3
Fluoride	0.4	0.8		0.3	0.4	0.4				0.87	
pH (Lab)	7.28	7.35	7.23	7.07	7.07	7.01	6.9	7.01	6.75	6.41	6.27
pH (Field)			7.31	6.95	7.04	7.01					
Sulfate X	<12	<75	8	<12	<12	<6	<12	7	<30	<15	<12
Spec. Cond.	500	247	468	528	554	543	548	619	581	533	530
Temperature	13	15	15.6	18	17	12	20	18	19.8	13.6	
Ammonia N	0.25	0.14	0.15	0.3	0.2	0.1				<0.10	
Nitrite N	<0.05	<0.10	<0.05				<0.05				
Nitrate N	<0.10	<0.10	<0.2	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.25	<0.050
Cyanide (total)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.006	<0.006	<0.005	<0.0050	<0.0050
TDS	283	274	1152	299	336	286	366	234	337	302	306

Well 0

LOCATION 18758.548, 6704.178

COLLAR ELEVATION - 442.445

DEPTH OF WELL - 28.62

	DATE	1/22/92	2/28/92	5/14/92	8/25/92	11/23/92	2/24/93	5/18/93	8/17/93	11/15/93	2/14/94
DEPTH TO WATER		26.42	23.16	23.25	23.32	22.34	20.03	20.05	21.16	22.56	20.56
WATER ELEVATION		416.025	419.285	419.195	419.125	420.105	422.415	422.395	421.285	419.885	421.885
Silver		<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010
Aluminum		0.9	1.2	1.4	2.8	12.5	15.4	21.2	17.1	11.5	15.4
Barium		0.03	0.02	0.03	0.03	0.079	0.099	0.325	0.093	0.083	0.148
Calcium		33.9	29.5	28	31	36.0			33.3		
Cadmium		<0.005	<0.005	<0.005	<0.005	<0.00100	0.0011	<0.00100	<0.001	0.0010	<0.0050
Chromium		<0.01	<0.01	<0.01	<0.01	0.007	0.008	0.009	0.009	0.006	0.012
Copper		<0.02	<0.02	<0.01	<0.02	0.0040	<0.0040	0.023	0.009	0.008	<0.020
Iron		1.18	1.48	2.1	3.6	18.7	19.5	10.0	23.6	18.9	24.9
Potassium		4	2	2	<2	2.52				2.17	
Magnesium		15.1	15.4	16	18	24.0				24.1	
Manganese		0.10	0.08	0.06	0.11	0.612				0.664	
Sodium		26	24	26.00	26	26.9				24.7	
Nickel		<0.02	<0.02	<0.02	<0.02	0.006	0.006	0.004	0.012	0.007	<0.020
Zinc		0.02	<0.02	0.02	0.04	0.092	0.098	0.094	0.181	0.111	
Mercury		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.00020
Arsenic		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050
Lead		0.013	0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050
Selenium		<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	<0.005	<0.005	<0.0050	<0.010
TOC		2	1	2	3	2	5	2	2.1	2.2	
Alkalinity			129	134	140	140				141	
Chloride		60	60	58	57	55	60	62	60	59.1	61.9
Fluoride		0.2	0.5	0.2	0.2	0.3				0.29	
pH (Lab)		7.27	7.14	6.92	6.94				6.8	6.7	6.4
pH (Field)			6.93	6.83	7.24	7.04	6.56	6.44	6.64	6.26	6.23
Sulfate X		11	3	<3	<3	<6	<3	<6	<3	<6.0	<6.0
Spec. Cond.		201	433	440	253	451	443	467	448	446	439
Temperature		13	15.5	16.7	18	16	14	17	17	19.6	15.6
Ammonia N			0.13	<0.1	0.2	0.4				<0.10	
Nitrite N		<0.05					<0.05				
Nitrate N			0.35	0.37	0.41	0.44	0.31	0.27	0.26	0.200	0.174
Cyanide (total)			<0.005	<0.005	<0.005	<0.010	<0.006	<0.006	<0.005	<0.0050	<0.0050
TDS		222	258	267	294	252	269	303	297	275	268

He II 1.2

LOCATION 19275, 583, 7092, 038

COLLAR ELEVATION - 962.221

DEPTH OF HELL = 81.91

	DATE	8/7/92	8/25/92	11/23/92	duplicate 11/23/92	2/24/93	5/18/93	duplicate 5/18/93	8/17/93	11/15/93	2/14/94	duplicate 2/14/94
DEPTH TO WATER		38	37.51	36.33		33.62	31.95		33.96	35.43	34.51	
WATER ELEVATION		424.221	424.711	425.891		428.601	430.271		428.261	426.791	427.711	
Silver		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010
Aluminum		209	88.6	36.5	32.0	13.1	9.65	5.74	4.91	1.14	1.02	1.14
Barium		0.30	0.17	0.079	0.069	0.026	0.027	<0.020	0.022	0.006	<0.020	<0.020
Calcium		67	57	50.0	49.2					43.5		
Cadmium		0.006	<0.005	0.0015	0.0011	<0.00100	<0.0050	<0.0050	<0.001	<0.001	<0.0050	<0.0050
Chromium		0.07	0.19	0.018	0.018	0.020	0.013	0.015	0.028	0.010	<0.010	<0.010
Copper		0.25	0.15	0.066	0.056	0.022	<0.020	0.021	0.017	0.005	<0.020	<0.020
Iron		160	91.7	43.4	39.2	13.1	7.65	6.08	7.19	2.02	1.69	1.78
Potassium		4	<2	1.18	0.963					<0.4		
Magnesium		38	29	22.0	21.4					16.6		
Manganese		12.70	7.35	3.57	3.10					0.106		
Sodium		24	29	22.2	22.3					20.9		
Nickel		0.06	0.05	0.028	0.023	0.011	<0.020	<0.020	0.016	0.011	<0.020	<0.020
Zinc		0.23	0.18	0.074	0.061	0.028	0.073	0.123	0.051	0.017	0.105	0.073
Mercury		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.00020	<0.00020
Arsenic		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050
Lead		0.028	0.028	0.009	0.008	<0.005	0.006	<0.005	<0.005	<0.0050	<0.0050	<0.0050
Selenium		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050
TOC		2	<1	2	7	1	1	2	2	2.4	1.5	1.2
Alkalinity		146	138	138	139					146		
Chloride		73	77	75	75	80	81	81	79	81.0	81.9	80.2
Fluoride		0.9	0.5	0.2	0.2					0.18		
pH (Lab)		6.96	6.81							6.9	6.9	6.6
pH (Field)		6.84	6.12	6.79		6.32	6.46		6.57	6.25	6.35	
Sulfate		<60	<30	<12	<6	<6	<6	<3		3.4	3.5	4.0
Spec. Cond.		493	504	510		511	504		496	498	515	
Temperature		17	18	16		13	20		18	18.8	17.2	
Ammonia N		0.40	0.3	<0.1	0.1					0.20		
Nitrite N						<0.05						
Nitrate N		0.29	0.37	0.42	0.43	0.36	0.38	0.37	0.34	0.363	0.380	0.375
Cyanide (total)		<0.005	<0.005	<0.050	<0.100	<0.006	<0.006	<0.006	<0.005	<0.0050	<0.0050	<0.0050
TDS		657	485	481	488	363	326	377	363	325	314	304

Davis & Floyd, Inc.

Laboratory Analysis Report

Page 1

Received: 02/16/94

02/28/94 16:17:41

Work Order # 94-02-139

REPORT NEVADA GOLDFIELDS, INC.  
TO P.O. BOX 1530  
McCORMICK, SC 29835

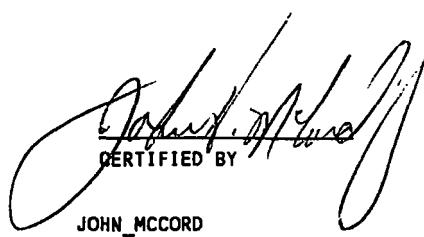
PREPARED DAVIS & FLOYD, INC.  
BY P.O. DRAWER 428  
GREENWOOD, SC 29648

ATTEN JEAN WHISNANT

PHONE (803)-229-5211

WORK ID JOB NO. 7561.02  
P.O. #  
TAKEN ERNEST CULPEPPER  
TYPE GROUNDWATER  
NUMBER OF SAMPLES 8

Comments:  
WE ARE PLEASED TO PROVIDE THIS CERTIFIED REPORT OF ANALYSES.  
FEEL FREE TO TELEPHONE IF FURTHER EXPLANATION IS REQUIRED.  
UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE, SAMPLES WILL BE  
DISPOSED OF OR RETURNED 14 DAYS FROM THE DATE OF THIS REPORT.

  
CERTIFIED BY  
John McCord

SAMPLE IDENTIFICATION	DATE COLLECTED
01 D-3	02/14/94 16:10:00
02 GW-6	02/15/94 07:10:00
03 L-2	02/14/94 14:05:00
04 GW-5	02/14/94 15:55:00
05 F-3	02/14/94 17:25:00
06 T	02/14/94 14:20:00
07 A-3	02/14/94 09:45:00
08 N	02/14/94 11:15:00

Page 2

Received: 02/16/94

Work Order # 94-02-139

02/28/94 16:17:41

Test Description	Units	01	02	03	04
		D-3	GW-6	L-2	GW-5
SILVER (TOTAL)	mg/l	< 0.010	< 0.010	< 0.010	< 0.010
ALUMINUM (TOTAL)	mg/l	0.926	0.824	1.02	53.2
BARIUM (TOTAL)	mg/l	< 0.020	0.032	< 0.020	0.240
CADMIUM (TOTAL)	mg/l	< 0.0050	< 0.0050	< 0.0050	< 0.0050
CHROMIUM (TOTAL)	mg/l	< 0.010	< 0.010	< 0.010	0.165
COPPER (TOTAL)	mg/l	< 0.020	< 0.020	< 0.020	0.141
IRON (TOTAL)	mg/l	1.35	1.29	1.69	90.6
NICKEL (TOTAL)	mg/l	0.020	< 0.020	< 0.020	0.065
ZINC (TOTAL)	mg/l	0.021	0.042	0.105	0.354
MERCURY (TOTAL)	mg/l	< 0.00020	< 0.00020	< 0.00020	< 0.00020
ARSENIC (TOTAL)	mg/l	< 0.0050	< 0.0050	< 0.0050	< 0.0050
LEAD (TOTAL)	mg/l	< 0.0050	< 0.0050	< 0.0050	0.0122
SELENIUM (TOTAL)	mg/l	< 0.0050	< 0.0050	< 0.0050	< 0.0050
ORGANIC CARBON TOTAL	mg/l	5.8	1.3	1.5	1.3
CHLORIDE	mg/l	52.1	38.5	81.9	44.1
pH (LAB)	pH units	6.7	6.6	6.8	6.5
SULFATE	mg/l	5.0	11.4	3.5	< 15 X
NITRATE NITROGEN	mg/l	0.141	0.122	0.380	< 0.10 X
CYANIDE (TOTAL)	mg/l	< 0.0050	< 0.0050	< 0.0050	< 0.0050
DISSOLVED SOLIDS TOTAL	mg/l	252	203	314	267

Test Description	Units	05	06	07	08
		F-3	T	A-3	N
SILVER (TOTAL)	mg/l	< 0.010	< 0.010	< 0.010	< 0.010
ALUMINUM (TOTAL)	mg/l	14.8	1.14	0.247	17.7

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Continued From Above

Test Description	Units	05	06	07	08
		F-3	T	A-3	N
<hr/>					
BARIUM (TOTAL)	mg/l	0.199	< 0.020	0.144	0.047
CADMUM (TOTAL)	mg/l	< 0.0050	< 0.0050	< 0.0050	< 0.0050
CHROMIUM (TOTAL)	mg/l	0.011	< 0.010	< 0.010	0.026
COPPER (TOTAL)	mg/l	0.335	< 0.020	0.031	0.024
IRON (TOTAL)	mg/l	76.5	1.78	0.609	23.3
NICKEL (TOTAL)	mg/l	< 0.020	< 0.020	< 0.020	< 0.020
ZINC (TOTAL)	mg/l	0.097	0.073	0.056	0.168
MERCURY (TOTAL)	mg/l	0.00083	< 0.00020	< 0.00020	< 0.00020
ARSENIC (TOTAL)	mg/l	< 0.0050	< 0.0050	< 0.0050	< 0.0050
LEAD (TOTAL)	mg/l	0.0327	< 0.0050	< 0.0050	< 0.0050
SELENIUM (TOTAL)	mg/l	< 0.0050	< 0.0050	< 0.0050	< 0.0050
ORGANIC CARBON TOTAL	mg/l	2.4	1.2	1.6	1.6
CHLORIDE	mg/l	5.9	80.2	4.0	64.3
pH (LAB)	pH units	5.6	6.5	5.0	6.8
SULFATE	mg/l	< 15 X	4.0	< 3.0	< 12 X
NITRATE NITROGEN	mg/l	0.127	0.375	0.308	< 0.050
CYANIDE (TOTAL)	mg/l	< 0.0050	< 0.0050	< 0.0050	< 0.0050
DISSOLVED SOLIDS TOTAL	mg/l	59	304	29	306

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Davis & Floyd, Inc.

Laboratory Analysis Report

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NEVADA GOLDFIELDS, INC.

NOTES:

X = INDICATES A MATRIX INTERFERENCE WHICH MAY REQUIRE A DILUTION OR  
WHICH PREVENTS THE REPORTING OF A RESULT. DETECTION LIMITS HAVE  
BEEN ADJUSTED WHERE APPLICABLE.

# DAVIS FLOYD

4402140, 9402139  
**Chain of Custody Form** Page \_\_\_ of \_\_\_

Page \_\_\_ of \_\_\_

816 East Durst Street, Greenwood, S.C. 29649 Phone (803)229-5211 Fax (803)229-7119

RELINQUISHED BY: (SIGNATURE) <i>Ernest Culpepper</i>	DATE / TIME 8:30 2/15/94	RECEIVED BY: (SIGNATURE) <i>Glen Whisnant</i>	RELINQUISHED BY: (SIGNATURE) <i>Glen Whisnant</i>	DATE / TIME 2-16-94 0645	RECEIVED BY: (SIGNATURE) <i>John C. Arrowood</i>
RELINQUISHED BY: (SIGNATURE) <i>John C. Arrowood</i>	DATE / TIME 2-16-94 0800	RECEIVED FOR LAB BY: (SIGNATURE) <i>Jisa S. McClellan</i>	DATE / TIME 2-16-94 08:00	CLIENT CONTACT: RESULTS SENT TO: DATE:	
DW-DRINKING WATER GW-GROUND WATER	WW-WASTE WATER RC-RCRA	HW-HAZARDOUS WATER SW-SURFACE WATER	SD-SOLID IM-IMPINGER SOLUTION	AB-ABSORBENT TUBE F-FILTERS	

Davis & Floyd, Inc.

Laboratory Analysis Report

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REPORT NEVADA GOLDFIELDS, INC.  
TO P.O. BOX 1530  
McCORMICK, SC 29835

PREPARED DAVIS & FLOYD, INC.  
BY P.O. DRAWER 428  
GREENWOOD, SC 29648

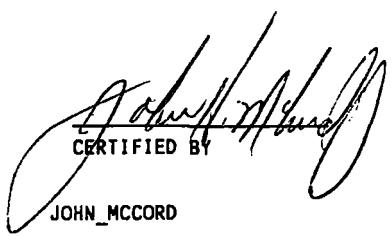
ATTEN JEAN WHISNANT

PHONE (803)-229-5211

WORK ID JOB NO. 7561.02  
P.O. #  
TAKEN ERNEST CULPEPPER  
TYPE GROUNDWATER  
NUMBER OF SAMPLES 2

Comments:

WE ARE PLEASED TO PROVIDE THIS CERTIFIED REPORT OF ANALYSES.  
FEEL FREE TO TELEPHONE IF FURTHER EXPLANATION IS REQUIRED.  
UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE, SAMPLES WILL BE  
DISPOSED OF OR RETURNED 14 DAYS FROM THE DATE OF THIS REPORT.

  
CERTIFIED BY

JOHN MCCORD

SAMPLE IDENTIFICATION  
01 0  
02 B-2

DATE COLLECTED  
02/15/94 08:00:00  
02/15/94 13:10:00

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Test Description	Units	01	02
		0	B-2
SILVER (TOTAL)	mg/l	< 0.010	< 0.010
ALUMINUM (TOTAL)	mg/l	15.4	0.880
BARIUM (TOTAL)	mg/l	0.148	0.188
CADMIUM (TOTAL)	mg/l	< 0.0050	< 0.0050
CHROMIUM (TOTAL)	mg/l	0.012	< 0.010
COPPER (TOTAL)	mg/l	< 0.020	0.022
IRON (TOTAL)	mg/l	24.9	13.9
NICKEL (TOTAL)	mg/l	< 0.020	< 0.020
ZINC (TOTAL)	mg/l	0.139	0.201
MERCURY (TOTAL)	mg/l	< 0.00020	< 0.00020
ARSENIC (TOTAL)	mg/l	< 0.0050	< 0.0050
LEAD (TOTAL)	mg/l	< 0.0050	0.1653
SELENIUM (TOTAL)	mg/l	< 0.010 X	< 0.0050
ORGANIC CARBON TOTAL	mg/l	2.2	1.3
CHLORIDE	mg/l	61.9	10.1
pH (LAB)	pH units	6.4	7.5
SULFATE	mg/l	< 6.0 X	12.1
NITRATE NITROGEN	mg/l	0.174	< 0.050
CYANIDE (TOTAL)	mg/l	< 0.0050	< 0.0050
DISSOLVED SOLIDS TOTAL	mg/l	268	182

Davis & Floyd,

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NEVADA GOLDFIELDS, INC.

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